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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/507,011	09/08/2004	Minoru Niigaki	046124-5316	6551

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EXAMINER	
TRAN, THUY V	

ART UNIT	PAPER NUMBER
2821	

DATE MAILED: 11/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/507,011	NIIGAKI ET AL.	
	Examiner	Art Unit	
	Thuy V. Tran	2821	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 September 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This is a response to the Applicants' filing on 09/08/2004 and preliminary amendment concurrently filed therewith. In virtue of this amendment, claims 1-13 are currently presented in the instant application.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings Objections

2. The drawings are objected to because Figs. 11 and 12 are not labeled correctly.

3. Figures 11 and 12 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Abstract Objection

4. The abstract of the disclosure is objected to because of its excessive length. Correction is required. See MPEP § 608.01(b).

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

> *The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent*

claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Double Patenting Rejections

6. *The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., In re Berg, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).*
A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.
Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1-8 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-8 of copending Application No. 10/504,979. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to a person skilled in the art to recognize that (i) the two groups of claims (claims 1-8 of the claimed invention and claims 1-8 of the copending application) are directed to a common subject matter, and (ii) "a secondary electron emitting layer" recited in claim 1 of the claimed invention is obviously equivalent to "a light absorption layer" recited in claim 1 of the copending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> *A person shall be entitled to a patent unless –*
> *(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

9. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Niigaki et al. (U.S. Patent No. 5,982,094).

With respect to claim 1, Niigaki et al. discloses, in Fig. 7, a transmission secondary electron emitter which emits secondary electrons [e-] generated by the incidence of primary electrons (which is hv; see Fig. 7); the transmission secondary electron emitter comprising (1) a secondary electron emitting layer [30] which is made of diamond or a material containing diamond as a main component (see col. 7, line 55), and of which one surface is the surface of incidence for making the primary electron incident thereon, and the other surface is the surface of emission for emitting the secondary electrons (see Fig. 7), and (2) a voltage applying means for applying a predetermined voltage (which is a positive voltage; see col. 7, lines 17-20) between the surfaces of the incidence and the emission of the secondary electron emitting layer [30].

With respect to claim 2, Niigaki et al. discloses, in Fig. 7, that the emitter further comprising a supporting means (which is ends of housing [20]; see Fig. 7; col. 7, lines 13-16) for reinforcing the mechanical strength of the secondary electron emitting layer [30].

With respect to claim 3, Niigaki et al. discloses that the secondary electron emitting layer [30] is made of polycrystalline diamond or a material containing polycrystalline diamond as a main component (see col. 7, line 8; col. 8, lines 2-3).

With respect to claim 4, Niigaki et al. discloses that the surface and the grain boundary face of the polycrystalline diamond of the secondary electron emitting layer [30] are terminated with oxygen (see col. 20, line 64 – col. 21, line 1).

With respect to claim 5, Niigaki et al. discloses that the surface of the emission of the secondary electron emitting layer [30] is terminated with hydrogen [32] (see Fig. 7; col. 8, lines 1-3).

With respect to claim 6, Niigaki et al. discloses that the surface of the emission of the secondary electron emitting layer [30] is terminated with oxygen (see col. 20, line 64 – col. 21, line 1).

With respect to claim 7, Niigaki et al. discloses, in Fig. 7, an active layer [32] for lowering the work function (see col. 7, lines 48-52) of the secondary electron emitting layer [30] is formed on the surface of the emission of the secondary electron emitting layer [30].

With respect to claim 8, Niigaki et al. discloses that the active layer [32] of the secondary electron emitting layer [30] comprises an alkali metal, an oxide of the alkali metal, or a fluoride of the alkali metal (see col. 20, line 64 – col. 21, line 2).

With respect to claim 9, Niigaki et al. discloses, in Fig. 7, an electron tube [10] comprising (1) the transmission secondary electron emitter recited in claim 1, (2) an electron source (which includes photocathode [30]) for emitting the primary electrons to the transmission secondary electron emitter [30], (3) an anode [40] for collecting the secondary electrons emitted

from the transmission secondary electron emitter [30], and (4) an envelope [20] for accommodating the transmission secondary electron emitter [30], the electron source [31], and the anode [40].

With respect to claim 10, Niigaki et al. discloses, in Fig. 7, that the electron source includes a photocathode [30] for emitting photoelectrons excited by incident light to be detected as the primary electrons.

10. Claims 1 and 9-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Niigaki et al. (U.S. Patent No. 5,986,387).

With respect to claim 1, Niigaki et al. discloses, in Fig. 1, a transmission secondary electron emitter which emits secondary electrons [e-] generated by the incidence of primary electrons (which is hv; see Fig. 1); the transmission secondary electron emitter comprising (1) a secondary electron emitting layer [18] which is made of diamond or a material containing diamond as a main component (see col. 2, lines 11-12), and of which one surface is the surface of incidence for making the primary electron incident thereon, and the other surface is the surface of emission for emitting the secondary electrons (see Fig. 1), and (2) a voltage applying means for applying a predetermined voltage (which is a positive voltage; see col. 4, lines 35-39) between the surfaces of the incidence and the emission of the secondary electron emitting layer [18].

With respect to claim 9, Niigaki et al. discloses, in Fig. 1, an electron tube [10] comprising (1) the transmission secondary electron emitter recited in claim 1, (2) an electron source (which includes photocathode [18]) for emitting the primary electrons to the transmission

secondary electron emitter [18], (3) an anode [20] for collecting the secondary electrons emitted from the transmission secondary electron emitter [18], and (4) an envelope [12] for accommodating the transmission secondary electron emitter of claim 1, the electron source [18], and the anode [20].

With respect to claim 10, Niigaki et al. discloses, in Fig. 1, that the electron source includes a photocathode [18] for emitting photoelectrons excited by incident light to be detected as the primary electrons.

With respect to claim 11, Niigaki et al. discloses, in Fig. 1, that the electron source includes a photocathode [18] for emitting photoelectrons excited by incident light to be detected as the primary electrons, and the anode [20] has a fluorescent screen [22] (see col. 3, lines 57-60) emitting light by the incidence of the secondary electrons.

With respect to claim 12, Niigaki et al. discloses, in Fig. 1, that the electron source includes a field emission electron source [18], and the anode [20] has a fluorescent screen [22] (see col. 3, lines 57-60) emitting light by the incidence of the secondary electrons.

With respect to claim 13, Niigaki et al. discloses, in Figs. 1 and 9, that the electron source includes a field emission electron source array in which a plurality of field emission electron sources are arranged in an array (see Fig. 9), and the anode [20] has a fluorescent screen [22] (see col. 3, lines 57-60) emitting light by the incidence of the secondary electrons.

Citation of relevant prior art

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Prior art Tomasetti et al. (Pub. No.: US 2002/0041154 A1) discloses a diamond transmission dynode and photomultiplier.

Prior art Eden et al. (U.S. Patent No. 6,828,730) discloses micro-discharge photo-detectors.

Prior art Lim et al. (U.S. Patent No. 6,674,235) discloses a photocathode.

Prior art Tomasetti et al. (U.S. Patent No. 6,657,385) discloses a diamond transmission dynode.

Prior art Estrera et al. (U.S. Patent No. 6,396,049) discloses an improved micro-channel plate.

Prior art Whitlock et al. (U.S. Patent No. 6,333,968) discloses a transmission cathode.

Inquiry

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuy V. Tran whose telephone number is (571) 272-1828. The examiner can normally be reached on M-F (8:00 AM -5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on (571) 272-1834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

11/27/2005

THUY V. TRAN
PRIMARY EXAMINER